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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,769	12/27/2004	Douglas John Thomson	9157-058	6616

1059 7590 11/28/2006

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EXAMINER

DAVIS, OCTAVIA L

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/517,769	Applicant(s) THOMSON ET AL.	
	Examiner Octavia Davis	Art Unit 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 3, 6, 7, 9 – 19, 22, 23 and 25 - 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Billeter et al (3,715,686).

Regarding claims 1, 17 and 25, Billeter et al disclose a multiple property measurement microwave sensor comprising a body 20 having an electromagnetic cavity 11 adapted to produce a response signal responsive to an interrogation signal that is altered by strain (See Col. 4, lines 24 – 43 and 63 – 66 and Col. 5, lines 1 – 5 and 20 – 23), the body 20 being coupled to the structure, a coupler 38 coupled to the body that transfers the interrogation signal to the electromagnetic cavity and transfers the response signal out of the cavity (See Col. 7, lines 11 – 13) and an interrogator 30 that generates and transmits the interrogation signal (See Col. 5, lines 15 – 20 and Col. 6, lines 56 – 63).

Regarding claims 2, 3, 18 and 19, the cavity 11 contains a dielectric and the body is a dielectric body (See Col. 9, lines 46 – 48).

Regarding claims 6 and 22, the cavity 11 is cylindrical (See Col. 5, lines 58 - 61).

Regarding claims 7, 18, 23, 24 and 27, amplifiers 32, 46 are provided and are coupled to the cavity 11 (See Col. 7, lines 24 – 28).

Regarding claims 9 – 12, the interrogator includes a signal transmission signal waveguide 14 (See Col. 4, lines 62 – 66), a signal generator 30 that excites the sensor (See Col. 5, lines 15 – 26), a detector 40 coupled to the waveguide 14 (See Col. 7, lines 8 – 14), and an input, output, control means and memory (See Col. 9, lines 25 – 38).

Regarding claims 13 – 16 and 28 – 35, the signal is a modulated or varied narrowband signal (See Col. 5, lines 40 – 44) and a modulated or varied broadband signal (See Col. 9, lines 19 – 30) having a center frequency that is varied in a sweep range including a resonant frequency of the cavity 11 (See Col. 6, lines 63 – 66) and the detector 40 detects a minimum of the response signal (See Col. 7, lines 60 – 68 and Col. 8, lines 1 – 3) and detects a peak in the response signal (See Col. 9, lines 1 – 12).

Regarding claim 26, the signal is processed to determine the strain (See Col. 4, lines 24 – 43, Col. 6, lines 13 – 18 and Col. 9, lines 55 – 64).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 5, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billeter et al (369') in view of Perlman (3,715,686).

Regarding claims 4, 5, 20 and 21, Billeter et al disclose all of the limitations of these claims except that the electromagnetic cavity is cubic and rectangular. However, Perlman discloses a

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microwave cavity designed to support electromagnetic signal waves comprising a block or cube shaped rectangular waveguide cavity 15 that includes broad walls 17, 19 and narrow walls 21, 23 (See Col. 2, lines 13 – 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Billeter et al according to the teachings of Perlman for the purpose of, providing a waveguide cavity that advantageously supports electromagnetic waves at desired operating fundamental frequency of semiconductor active devices to propagate the signal waves in a dominant mode (See Perlman, Col. 3, lines 43 – 51).

#### ***Allowable Subject Matter***

5. Claims 8 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

6. Applicant's arguments with respect to these claims have been considered but are moot in view of the new grounds of rejection.

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Neff (5,873,840) discloses an intracranial pressure monitoring system.

Kain (5,261,278) discloses a microwave acceleration transducer.

Woodard et al (7,086,593) disclose a magnetic field response measure acquisition system.

Grimes (6,359,444) discloses a remote resonance circuit analyte sensing apparatus with a sensing structure and associated method of sensing.

Geisler et al (5,173,640) disclose an apparatus for the production of a regular microwave field.


Ishikawa et al (5,119,034) disclose a method of measuring dielectric material constants and a measuring device employed therefore.

Johnson et al (5,101,103) disclose a microwave interaction module notably for an atomic or molecular beam resonator.

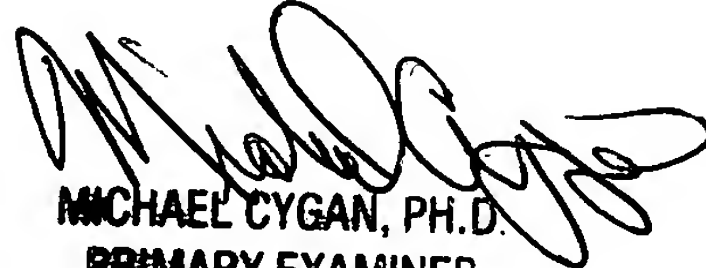
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Octavia Davis whose telephone number is 571-272-2176. The examiner can normally be reached on Mon through Thurs from 9 to 6. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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11/20/06

  
MICHAEL CYGAN, PH.D.  
PRIMARY EXAMINER